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AN ANALYSIS  
OF  
SOME PHASES  
OF  
American Mortality Statistics  
for the Nine Years, 1900-1908

By

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THAT notable pioneer in the field of American statistics, the late Gen. Francis A. Walker, may have permitted his love for his profession to bias his conclusion when he declared that "the American people *are* intensely and passionately devoted to statistics," or may have merely been somewhat premature in his application of the present tense to the subject. But there is no denying the fact that in these twentieth-century days a considerable portion of the thinking American public is showing the liveliest sort of interest in at least one phase of statistical lore, namely, the vital statistics of the United States.

Probably no questions of a statistical nature ever were more often asked, and more widely discussed, than that familiar one, "what is the American death-rate?" and the veritable maze of interrogatory corollaries which follow in its wake.

Of course, as every one familiar with the present limitations of the vital statistics of this country is aware, if these questions were to be taken literally, and categorical answers demanded, even that American court of last resort on such subjects, the Bureau of the Census, would be forced to admit its inability to make answer. But, practically all statistics are only approximately accurate, and at last, for the first time in its entire history, that

governmental fount of statistical knowledge; the Census Office, is now in a position to make answer to such questions, and to supply seekers after this particular information with fairly-accurate data concerning at least a considerable section of Continental United States. This pronounced change for the better, this rift in the clouds which had hitherto lowered over the vital statistics of this country as a whole, is primarily due to the establishment of the permanent Census Bureau by Act of Congress in 1902, and to the resultant compilation and publication of special annual reports in the way of Mortality Statistics of the registration area year by year for the nine years, 1900-1908, inclusive.

Up to that time, the only American vital statistics of any real value were those annually compiled by a mere handful of States in the East, these affording the only available basis for the all-important annual comparisons. The vital statistics of the decennial censuses were practically worthless for that purpose, comparisons of figures for single years a decade apart—any one of which might have chanced to be an abnormal twelve-month—being entirely untrustworthy. Owing to the more or less loose registration laws of almost all States up to a very recent date, in so far as the recording of births and deaths was concerned, the lack of uniformity in their death certificates, and the frequent changes in both the methods and personnel of their registration bureaus, no working comparison of the annual records of even the small group of registration States was possible. And any attempt at even approximately calculating the mortality rate of the country as a whole on the basis of this mere *soupeçon* of vital statistics would have been little short of madness from a scientific point of view.

Even now, by no means all the necessary information for computing the death-rate of the entire United States is available, but as the registration area whose methods in the compilation of statistics for 1908 received the endorsement of the Bureau of the Census included more than one-half of the country's entire population—and even in the first year for which the Census Office computed its annual mortality statistics contained more than forty per cent. of the population of Continental United States—it is evident that the foundations for a comparison of the nation's annual death-rates have been fairly and squarely laid.

It is the purpose of this article to group and analyze the data

thus presented, and in so far as they permit, attempt an approximate interpretation of their real significance. Were the figures for, say, fifty consecutive years available, the conclusions would be much more firmly grounded, but the data for nine consecutive years, compiled on a substantially uniform basis in so far as methods are concerned, are infinitely superior to those of innumerable decennial censuses. And, taken at their face value, the annual mortality records of the Bureau of the Census for the nine years, 1900-1908, are as stated in the tables presented on subsequent pages of this article, in so far as deaths from all causes and deaths from sixteen of the principal groups of causes are concerned.

In so far as I am aware, the following tabulation which I have prepared on the basis of the special reports of the Census Office for 1900-1907, and its preliminary synopsis of the records of 1908, is the first detailed comparison of the kind for the nine years in question which has ever been presented in any form, either in or out of the publications of the Census Office. Almost innumerable comparisons for from two to five years, in the case of the death-rates from all causes and death-rates from certain specific causes, have been published in the various volumes of Mortality Statistics, but never hitherto, I believe, has the detailed comparison been made to cover the entire stretch of nine years with which the several volumes in question deal—though there is no telling at this writing what the full volume of Mortality Statistics for 1908 may have to offer.

Before any analysis of the impressive figures is attempted, full allowance must be made for (1) the constantly-changing expanse and class of population of the registration area with which the figures for the several years have to deal, and for (2) the fact that even as late as 1908 but 6.7 per cent. of the deaths included in the totals were those of the colored race—thus emphasizing the fact that in the main the South, with its unusually large percentages of both the colored race and native-born Americans, is still without the fold of the registration area—Maryland being the only southern State whose mortality records are included in the appended tables. With these reservations, the tabular data presented may be accepted as the most reliable information on the subject now obtainable—the death-rates in each case being those per 100,000 of population.

A COMPARISON OF THE ANNUAL DEATH-RATES FROM VARIOUS LEADING CAUSES IN THE REGISTRATION AREA IN THE NINE YEARS, 1900-1908, INCLUSIVE

| CAUSES OF DEATH             | 1900    | 1901    | 1902    | 1903    | 1904    | 1905    | 1906    | 1907    | 1908    | AVERAGE RATES |         |
|-----------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------------|---------|
|                             |         |         |         |         |         |         |         |         |         | 1900-4        | 1905-8  |
| ALL CAUSES                  |         |         |         |         |         |         |         |         |         |               |         |
| Registration Area .....     | 1,755.0 | 1,656.0 | 1,594.1 | 1,611.8 | 1,663.9 | 1,616.0 | 1,605.3 | 1,645.3 | 1,535.8 | 1,656.2       | 1,600.6 |
| Cities in Reg. States.....  | 1,893.4 | 1,782.7 | 1,705.8 | 1,707.3 | 1,789.3 | 1,716.8 | 1,783.4 | 1,804.8 | 1,654.6 | 1,775.7       | 1,739.9 |
| Rural Part Reg. States..... | 1,519.7 | 1,455.3 | 1,337.9 | 1,367.8 | 1,442.6 | 1,430.6 | 1,405.7 | 1,448.7 | 1,396.0 | 1,424.7       | 1,420.3 |
| TYPHOID FEVER               |         |         |         |         |         |         |         |         |         |               |         |
| Registration Area .....     | 35.9    | 32.4    | 34.4    | 34.3    | 31.9    | 28.1    | 32.1    | 30.3    | 25.3    | 33.8          | 29.0    |
| Cities in Reg. States.....  | 28.5    | 26.5    | 25.8    | 24.6    | 24.0    | 22.0    | 34.2    | 31.7    | 24.5    | 25.9          | 28.1    |
| Rural Part Reg. States..... | 34.6    | 28.8    | 26.9    | 24.5    | 23.7    | 23.0    | 28.6    | 26.0    | 24.3    | 27.7          | 25.5    |
| DIPHTHERIA AND CROUP        |         |         |         |         |         |         |         |         |         |               |         |
| Registration Area .....     | 43.3    | 34.1    | 30.9    | 31.8    | 28.5    | 23.8    | 26.3    | 24.3    | 22.3    | 33.7          | 24.2    |
| Cities in Reg. States.....  | 52.4    | 43.1    | 39.8    | 41.5    | 38.5    | 30.1    | 32.7    | 30.2    | 27.9    | 43.1          | 30.2    |
| Rural Part Reg. States..... | 26.5    | 21.5    | 17.0    | 17.7    | 17.5    | 15.0    | 20.2    | 18.7    | 17.3    | 20.0          | 17.8    |
| TUBERCULOSIS (OF LUNGS)     |         |         |         |         |         |         |         |         |         |               |         |
| Registration Area .....     | 180.5   | 174.9   | 163.2   | 165.7   | 177.3   | 168.2   | 159.4   | 158.9   | 149.6   | 172.3         | 159.0   |
| Cities in Reg. States.....  | 204.1   | 194.7   | 177.4   | 179.7   | 189.4   | 178.5   | 184.0   | 181.5   | 169.1   | 189.1         | 178.3   |
| Rural Part Reg. States..... | 138.0   | 133.6   | 120.7   | 120.7   | 131.1   | 126.2   | 121.9   | 123.8   | 117.3   | 128.8         | 122.3   |
| TUBERCULOSIS (OTHER FORMS)  |         |         |         |         |         |         |         |         |         |               |         |
| Registration Area .....     | 20.7    | 21.9    | 21.5    | 23.3    | 24.2    | 25.4    | 24.8    | 24.6    | 24.2    | 22.3          | 24.8    |
| Cities in Reg. States.....  | 26.1    | 26.9    | 26.2    | 27.6    | 28.8    | 28.7    | 29.9    | 29.4    | 29.2    | 27.1          | 29.3    |
| Rural Part Reg. States..... | 15.5    | 16.0    | 15.3    | 17.0    | 17.6    | 19.1    | 18.5    | 18.7    | 19.3    | 16.3          | 18.9    |
| CANCER                      |         |         |         |         |         |         |         |         |         |               |         |
| Registration Area .....     | 63.0    | 64.5    | 65.3    | 68.6    | 70.6    | 72.1    | 70.8    | 73.1    | 74.3    | 66.4          | 72.6    |
| Cities in Reg. States.....  | 66.2    | 69.0    | 68.4    | 72.3    | 74.0    | 75.7    | 78.0    | 80.0    | 80.5    | 70.0          | 78.6    |
| Rural Part Reg. States..... | 61.5    | 62.7    | 63.2    | 66.4    | 68.0    | 70.9    | 62.6    | 66.0    | 68.0    | 64.4          | 66.9    |

A COMPARISON OF THE ANNUAL DEATH-RATES FROM VARIOUS LEADING CAUSES IN THE  
REGISTRATION AREA IN THE NINE YEARS, 1900-1908, INCLUSIVE—(Continued)

| CAUSES OF DEATH                      | 1900  | 1901  | 1902  | 1903  | 1904  | 1905  | 1906  | 1907  | 1908  | AVERAGE RATES |        |
|--------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------------|--------|
|                                      |       |       |       |       |       |       |       |       |       | 1900-4        | 1905-8 |
| MENINGITIS                           |       |       |       |       |       |       |       |       |       |               |        |
| Registration Area .....              | 40.9  | 33.3  | 31.3  | 28.3  | 31.8  | 34.5  | 25.6  | 26.6  | 19.8  | 33.1          | 26.6   |
| Cities in Reg. States.....           | 48.4  | 38.6  | 36.2  | 32.8  | 43.3  | 51.1  | 30.7  | 30.2  | 21.4  | 39.9          | 33.4   |
| Rural Part Reg. States.....          | 31.6  | 25.8  | 21.6  | 21.5  | 22.2  | 23.1  | 18.3  | 18.5  | 17.1  | 24.5          | 19.3   |
| OTHER DISEASES OF NERVOUS SYSTEM     |       |       |       |       |       |       |       |       |       |               |        |
| Registration Area .....              | 167.9 | 159.8 | 154.6 | 150.9 | 151.0 | 147.8 | 145.9 | 148.9 | 138.1 | 156.8         | 145.2  |
| Cities in Reg. States.....           | 158.0 | 153.4 | 149.1 | 144.8 | 145.4 | 143.2 | 142.7 | 144.5 | 131.6 | 150.1         | 140.5  |
| Rural Part Reg. States.....          | 173.6 | 172.3 | 163.4 | 165.0 | 170.6 | 165.7 | 157.0 | 162.0 | 153.2 | 169.0         | 159.5  |
| DISEASES OF CIRCULATORY SYSTEM       |       |       |       |       |       |       |       |       |       |               |        |
| Registration Area .....              | 147.2 | 147.8 | 154.3 | 160.7 | 172.7 | 173.3 | 172.4 | 187.7 | 179.0 | 156.5         | 178.1  |
| Cities in Reg. States.....           | 155.6 | 156.0 | 164.7 | 167.3 | 180.2 | 182.2 | 189.5 | 204.7 | 190.4 | 164.8         | 191.7  |
| Rural Part Reg. States.....          | 146.6 | 149.6 | 154.0 | 167.7 | 182.3 | 180.9 | 165.0 | 183.6 | 175.1 | 160.0         | 176.2  |
| PNEUMONIA                            |       |       |       |       |       |       |       |       |       |               |        |
| Registration Area .....              | 158.6 | 133.3 | 124.5 | 122.2 | 135.7 | 115.7 | 110.8 | 120.8 | 98.8  | 134.9         | 111.5  |
| Cities in Reg. States.....           | 186.5 | 146.5 | 136.6 | 134.4 | 155.7 | 127.7 | 127.8 | 134.5 | 107.8 | 151.9         | 124.5  |
| Rural Part Reg. States.....          | 113.9 | 108.6 | 90.6  | 86.1  | 97.3  | 92.7  | 88.2  | 96.7  | 82.9  | 99.3          | 90.1   |
| OTHER DISEASES OF RESPIRATORY SYSTEM |       |       |       |       |       |       |       |       |       |               |        |
| Registration Area .....              | 97.7  | 97.0  | 98.1  | 95.8  | 96.6  | 90.0  | 89.6  | 92.9  | 82.7  | 97.0          | 88.8   |
| Cities in Reg. States.....           | 116.2 | 118.1 | 124.3 | 119.0 | 120.3 | 108.5 | 115.0 | 116.1 | 103.3 | 119.6         | 110.7  |
| Rural Part Reg. States.....          | 71.7  | 72.6  | 63.8  | 66.9  | 68.6  | 65.6  | 62.1  | 66.5  | 61.9  | 68.7          | 64.0   |

A COMPARISON OF THE ANNUAL DEATH-RATES FROM VARIOUS LEADING CAUSES IN THE  
REGISTRATION AREA IN THE NINE YEARS, 1900-1908, INCLUSIVE—(Continued)

| CAUSES OF DEATH                    | 1900  | 1901  | 1902  | 1903  | 1904  | 1905  | 1906  | 1907  | 1908  | AVERAGE RATES |        |
|------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------------|--------|
|                                    |       |       |       |       |       |       |       |       |       | 1900-4        | 1905-8 |
| DIARRHEA AND ENTERITIS             |       |       |       |       |       |       |       |       |       |               |        |
| Registration Area .....            | 133.2 | 113.8 | 105.4 | 101.5 | 111.3 | 116.7 | 122.9 | 116.7 | 116.0 | 113.0         | 118.1  |
| Cities in Reg. States.....         | 168.9 | 145.6 | 129.6 | 122.6 | 138.2 | 141.1 | 145.3 | 143.0 | 133.5 | 141.0         | 140.7  |
| Rural Part Reg. States.....        | 106.6 | 80.3  | 70.0  | 68.6  | 74.1  | 86.1  | 101.4 | 87.4  | 96.9  | 79.9          | 93.0   |
| OTHER DISEASES OF DIGESTIVE SYSTEM |       |       |       |       |       |       |       |       |       |               |        |
| Registration Area .....            | 93.0  | 87.4  | 86.4  | 86.6  | 88.3  | 87.5  | 87.6  | 86.4  | 83.1  | 88.3          | 86.2   |
| Cities in Reg. States.....         | 92.6  | 87.4  | 85.3  | 86.1  | 87.7  | 86.1  | 92.6  | 90.1  | 85.8  | 87.8          | 88.7   |
| Rural Part Reg. States.....        | 86.1  | 78.2  | 75.5  | 77.7  | 78.7  | 79.8  | 76.5  | 76.5  | 74.3  | 79.2          | 76.8   |
| BRIGHT'S DISEASE AND NEPHRITIS     |       |       |       |       |       |       |       |       |       |               |        |
| Registration Area .....            | 89.0  | 89.5  | 91.3  | 97.8  | 103.8 | 104.3 | 99.8  | 105.5 | 97.3  | 94.3          | 101.7  |
| Cities in Reg. States.....         | 110.2 | 109.0 | 108.4 | 114.2 | 122.0 | 119.4 | 121.3 | 127.3 | 113.9 | 112.8         | 120.5  |
| Rural Part Reg. States.....        | 63.9  | 65.8  | 67.6  | 72.8  | 76.9  | 78.1  | 71.2  | 76.4  | 73.7  | 69.4          | 74.9   |
| DISEASES OF EARLY INFANCY          |       |       |       |       |       |       |       |       |       |               |        |
| Registration Area .....            | 76.9  | 66.2  | 68.4  | 69.2  | 72.4  | 70.0  | 72.6  | 73.4  | 71.7  | 70.6          | 71.9   |
| Cities in Reg. States.....         | 90.4  | 80.0  | 81.8  | 82.8  | 84.2  | 81.3  | 88.0  | 87.4  | 84.3  | 83.8          | 85.3   |
| Rural Part Reg. States.....        | 51.6  | 49.0  | 51.0  | 46.7  | 53.5  | 53.1  | 56.5  | 57.4  | 58.9  | 50.4          | 56.5   |
| SUICIDE                            |       |       |       |       |       |       |       |       |       |               |        |
| Registration Area .....            | 11.5  | 12.2  | 12.7  | 13.9  | 14.8  | 16.1  | 14.3  | 16.2  | 18.5  | 13.0          | 16.3   |
| Cities in Reg. States.....         | 11.8  | 11.7  | 11.7  | 12.8  | 13.9  | 15.0  | 15.2  | 17.2  | 20.4  | 12.4          | 17.0   |
| Rural Part Reg. States.....        | 8.3   | 8.7   | 8.5   | 9.4   | 10.1  | 11.6  | 10.7  | 12.3  | 14.4  | 9.0           | 12.3   |
| OTHER VIOLENCE                     |       |       |       |       |       |       |       |       |       |               |        |
| Registration Area .....            | 84.5  | 94.3  | 84.9  | 95.4  | 95.8  | 95.8  | 106.6 | 109.7 | 97.9  | 91.0          | 102.5  |
| Cities in Reg. States.....         | 85.2  | 99.8  | 84.9  | 94.3  | 101.5 | 96.0  | 112.4 | 111.7 | 96.8  | 93.1          | 104.2  |
| Rural Part Reg. States.....        | 68.3  | 75.5  | 70.0  | 80.4  | 81.8  | 83.3  | 101.3 | 107.9 | 101.0 | 75.2          | 98.4   |

As will be noted, I have supplemented each line of annual figures for the nine years with a computation of the averages for two periods of five and four years respectively, namely, the years 1900-1904 and 1905-1908, inclusive. This method of partially eliminating the annual fluctuations, and showing the comparative trend of the former five years as contrasted with that of the latter four years, has seemed to me advisable in order to measure the general drift of the death-rate in each case. In cases where the last four years show an actual increase over the first five years, those figures have been brought out in full-face type in order to make the apparent rise in the death-rate obvious at a glance.

It must also be noted that I have restricted the comparison of urban and rural deaths from all causes to the registration States, not including registration cities *outside* of registration States. To be sure, by including registration cities of that class, an urban mortality about one-third again as large as that included in the rates for "cities in Registration States" would have been brought into play, but I can see no reason for including in a tabulation of this kind a comparison of the rural mortality of registration States with the urban mortality of not only the cities of those States but also individual cities in other States. The rates for the registration area as a whole, however, of course are based on the mortality returns for the registration cities of non-registration States as well as both the urban and rural mortality of the registration States.

The precise nature of the table having been explained, it will be seen that in the latter "half"—four years—of the nine-year period, 1900-1908, the general death-rate of the entire registration area dropped from 1,656.2 to 1,600.6, thus scoring a decrease of 55.6 per 100,000 of population. As the mean population of the entire registration area for the four years, 1905-1908, was 40,385,233, according to the Census Office's annual estimates of population, this decrease of 55.6 per 100,000 population meant an average annual saving of 22,454 lives, or a presumptive total of 89,816 lives in the four years, as compared with the number of deaths which would have occurred had the average general death-rate for the previous five years obtained in the last four years. The bulk of this decrease is to be noted in the case of the cities in the registration States, the decrease of those cities' death-

rate having been one of 35.8 deaths per 100,000 of population, as compared with one of only 4.4 deaths per 100,000 population in the rural part of the registration States.

Such a variety of possible factors is involved in any attempt to figure out the probable reasons for the eight-fold drop in the urban death-rate as compared with that in the rural rate that it may be useless to hazard even a mere guess at the reasons for the pronounced discrepancy. Were I to do so, however, I should be inclined to suggest that the many notable improvements in sanitation, hygiene, and medical and surgical methods have naturally made their presence much more strongly felt in the cities than in the country. And the greater general knowledge of city folk as to how to cope with incipient ailments, and the far-greater accessibility of physicians and surgeons, medical supplies, and hospitals in the cities might be expected to give the city communities a decided advantage over residents of the country districts. At best, this supposition as to the reasons for eight times as large an apparent decline in the urban death-rate is mere guesswork, and I venture it merely for what it is worth.

As to the apparent decline in the general death-rate of the registration area in the last nine years of record, there would seem to be no reason to question it. No one can doubt that there has been a decided advance in methods sanitary, methods hygienic, and methods medical, and in default of some deteriorating offset a decrease in the death-rate might confidently be looked for. As Prof. Irving Fisher has demonstrated in his remarkable "Report on National Vitality—Its Wastes and Conservation," included as part of the report of the National Conservation Commission, throughout the civilized world there has been a more or less steady increase in the average duration of life, or in other words a corresponding decline in the general death-rate. The vital statistics of practically all the leading European countries show a slow but sure drop in the death-rate of late years, that of the country with the most accurate registration methods, England and Wales, having declined from 18.2 in 1900 to 15.4 in 1906, as compared with a decline in the registration area of this country in those same years from 17.6 to 16.1. There would, therefore, seem to be no reason for questioning the approximate accuracy of the American decline as shown by the Census Office's

figures, and, on the contrary, every reason for taking them at their full face value.

When it comes to interpreting the comparative figures for the death-rates of the various classes of diseases as shown by the Census Office's Mortality Statistics, extreme caution must be exercised owing to the steadily-increasing differentiation of some doctors in their classification of causes of deaths, and, on the other hand, the careless methods of many doctors in making out their death certificates. Nevertheless, there is promise of increasing uniformity on these lines, and the trend in that direction is well stated in the introduction to the Census Office's Mortality Statistics for 1907 in these words:

"A beginning has at least been made in the direction of uniform methods for the collection and publication of vital statistics in the United States, and also, with the extensive cooperation of the organized medical profession of the country, some important preliminary work has been done with reference to the Second Decennial Revision of the International Classification of Causes of Death and the establishment of a broad foundation for an accepted nomenclature of diseases, which is indispensable for accurate statistics of mortality."

The Bureau of the Census was one of the first national offices in the world to employ the International Classification, for the compilation of the mortality returns for 1900, has since used that classification in all its annual Mortality Statistics, and in accordance with an Act of Congress the Director of the Census was empowered to designate three commissioners to represent the United States at the Second Decennial Revision of the International Classification of Diseases and Causes of Death, held at Paris on July 1-3 last.

Granting the possibility that the death returns of the later years included in the nine annual special reports of Mortality Statistics issued by the Bureau of the Census may have been characterized by slightly-greater exactness of classification of the causes of death, all nine of these reports have been based upon returns to all intent uniform in the naming and grouping of diseases. It would therefore appear that, in most cases at least, the returns for the nine years are fairly comparable, and afford an approximately accurate means of determining the rise or fall of the death-rate for certain important diseases in the regis-

tration area of the United States in practically the first decade of the present century. Obviously, in a general way, the greater the number of deaths under observation in the case of any particular cause, or group of causes, of death, the more reliable would be the calculations of the death-rate for that disease, or diseases. And in the preceding table only diseases, or groups of diseases, having an annual mortality running into thousands have been included. A brief summary and analysis of their respective showings follow.

As might have confidently been expected in view of the increased knowledge of the causes for, safeguards against, and treatment of, typhoid fever, the death-rate of that disease apparently shows a pronounced decline in the last nine years of record, the decrease for the entire registration area in the later as compared with the earlier period having been one of 4.8 per 100,000 of population—that is to say, a decrease of more than 14 per cent. Unfortunately, the record of the cities in the registration States seems to have increased, from 25.9 to 28.1, although there was a decrease in both the registration area at large and the rural part of that area. The urban increase of 2.2 deaths per 100,000 of population would signify a typhoid mortality in the cities of the registration States annually greater by several hundred than would have been the case had the urban death-rate from typhoid in 1900-1904 remained unchanged in 1905-1908.

As medical authorities are now agreed that the disease is practically restricted to victims of germ-infected water or milk, the increase in the urban typhoid rate, if correct, immediately raises this question: are the conditions of city life on a large scale such that typhoid epidemics can gain a foothold before city health departments can successfully trace and grapple with them, or has there been culpable negligence on the part of municipal authorities in guarding against the ever-present danger of polluted water or milk finding its way to their congested populations? Every now and then there is a "typhoid scare" in this or that city, but there was no genuine city epidemic in the years 1905-1908, to the best of my recollection, which would account for an *increased* urban death-rate as compared with 1900-1904. In that event, just why should there have been any city increase in the face of the supposedly-improved handling of the typhoid peril?

In the matter of deaths due to diphtheria and croup, there was a gratifying decrease in the death-rate all along the line. In the registration area as a whole, the decrease was 9.5 per 100,000 population—or one of all but 30 per cent.—in the later period, and in the cities where anti-toxin has come into such general use the decrease measured 12.9 per 100,000 population, or about 30 per cent. The decrease in the rural districts was much smaller, amounting to scarcely 10 per cent., but there is nothing surprising in that fact, as the advanced treatment of one of the appalling scourges of the last century would naturally first make its effects felt in the cities where up-to-date pathological knowledge is more promptly utilized than in the country.

In the case of that foremost of modern death-dealing diseases, “the white plague” as the so-called “consumption” of a generation ago or “tuberculosis” of to-day is sometimes known, there was a considerable decrease in the registration area as a whole, a smaller decrease in the cities’ death-rate, and a still-smaller decrease in the rural district, the declines in question having respectively been 13.3, 10.8, and 6.5 per 100,000 of population—that is to say in the case of tuberculosis in the lungs only. If all deaths charged in the death returns to tuberculosis of the lungs or tuberculosis of other forms are jointly taken into account, there would still be a net decrease in the tuberculous death-rate in the registration area, and both cities and rural districts of registration States, but in decidedly reduced figures, according to the Census Office’s records. As I believe is pointed out in one of its recent reports, however, the figures for “other forms of tuberculosis” are to be taken with several grains of allowance, as very possibly many deaths have latterly been classified under that head which would formerly have been charged up under one or other of fundamentally-different classifications.

Passing strange it would be if, under the latter-day concentration of public attention on tuberculosis, the bestowal of large sums of money on the anti-tuberculosis campaign, and the wholesale establishment of sanatoria and various other means of caring for tuberculous patients, there had not been a real decrease in the death-rate for that particular disease in this country. The exhibitions in Washington, New York, and other cities as a result of the recent session of the International Congress on

Tuberculosis at Washington, the anonymous donation of the fund of \$100,000 to be awarded to the man, or men, discovering a real cure for the disease, and the reinvigorated fight against the scourge now well under way, are all matters of comparatively recent occurrence. Consequently, the seemingly-inevitable sharp decrease in the tuberculosis death-rate is rather to be looked for in the records of the next few years, than in the four years ending with 1908.

That other dread scourge of modern times which up to date has defied the entire medical fraternity to devise a specific remedy for it, namely, cancer, annually carries off almost two-fifths as many victims in the registration area of this country as does tuberculosis. And the table presented on previous pages of this article shows that in the entire district in question, in the cities, and in the country too, there was a decided increase in its death-rate in the later of the two periods for which the averages have therein been presented. The general upward movement of the cancer death-rate has previously been noted in various quarters, I believe; the fact that the late George Crocker, who died of cancer, left \$1,000,000 to Columbia University for the special study of that disease sadly proves the utter inadequacy of present methods of attempting to cope with the disease; and there are therefore the best of reasons for accepting the Census Office's figures as correctly recording the general latter-day tendency of the death-rate from cancer.

As the table shows, both meningitis and pneumonia recorded substantial decreases in their respective death-rates in 1905-1908 as compared with 1900-1904, on all three bases of measurement, and so did diseases of the nervous system other than meningitis, and diseases of the respiratory system other than pneumonia. If the figures given under the somewhat dubiously-comprehensive classification "diseases of the circulatory system" are to be regarded as thoroughly trustworthy, there was in that case, on the contrary, a sharp increase in the death-rate on all three bases of analysis, namely, registration area, and cities and rural parts of registration States. There is no doubt that the intensified conditions of modern life have increased the tendency to heart-diseases of various orders—the detailed record of the Census Office so show conclusively—and the probability is that, despite the somewhat loose general classification of all diseases

of one system under a single heading, the general indication of the figures for "diseases of the circulatory system" is substantially correct.

Practically all the death-rates presented under the subsequent classifications presented in the preceding table will make disappointing reading for those optimists who had hoped—and almost if not quite persuaded themselves to believe—that the mortality statistics of recent years for the registration area of this country would show a practically-universal drop in the nation's death-rate as a result of improved medical, surgical and hygienic methods. But the figures for (1) diarrhœa and enteritis, (2) other diseases of the digestive system, (3) diseases of early infancy, and (4) Bright's disease and nephritis not only show no decrease of consequence under any of the various subdivisions, but in most cases indicate a decided increase.

At least two of these classifications, namely, diarrhea and enteritis and diseases of early infancy, have to do almost exclusively with infant mortality proper, that is to say, with deaths under one year of age. In the former case there was an almost-infinitesimal decrease of the city death-rate, but the surprisingly heavy increase in the rural death-rate resulted in a net increase of 5.1 deaths per 100,000 of population in the whole registration area. In the latter case, diseases of early infancy, there was a repetition of the high increase in the rural districts, and a slight increase in both the cities and the entire area under observation. Evidently, the recent *talk* about a vigorous campaign against infant mortality has not yet produced any appreciable results in the American community at large—at least, not in the case of the two classes of diseases which alone cause almost half of all the deaths under age 1.

There can be no question at all as to the decided increase of late years in the ratios to population of deaths due, first, to suicide, and, secondly, to accidents and other violent causes. In his annually-published studies of the suicide-rates in fifty leading American cities, Frederick L. Hoffman, statistician of the Prudential Insurance Company, has proven the continuously upward movement of the suicide rate in practically all cities of the first or second rank in this country for many years. The Census Office's figures not only substantiate Mr. Hoffman's conclusions from his own investigations, but show that in country and city

alike there was a decided increase in suicide rates in 1905-1908 as contrasted with 1900-1904. Both in the urban and rural districts, the increase was approximately 37 per cent. in the later as compared with the former period. This startling increase in that narrow stretch of years is positively alarming, and should it be maintained for the next decade or so would very probably show twice as many deaths per 100,000 of population in the Fourteenth Census as it will show in the Thirteenth Census.

The unfortunate increase in the rate of deaths from other violent causes is not quite so alarming as that in the case of suicides, but is high enough to show conclusively that "there is a screw loose" somewhere in the mechanism of modern American life. The record of our railroad accidents from year to year, our amazing annual contributions to "the nation's ash-heap," as fire underwriters sometimes aptly term our annual fire-loss, our seeming apathy toward Europe's up-to-date safeguards against mining disasters, factory accidents, etc., and our shocking roster of homicides—and homicides unexplained and unpunished—all confirm the theory that the helter-skelter American rush for money, and "results-at-any-price," really means an extremely low valuation of human life in this country, as Charles Francis Adams, Jr., remarked in effect in his pioneer little work on our railroad accidents.

Prof. Irving Fisher has estimated that something like 40 per cent. of our annual mortality is preventable mortality—that is to say, might be prevented by the mere adoption of sane, rational, precautions. I dare say his conclusion is quite sound; but in the light of the mortality statistics for recent years what indication is there of the necessary *general* adoption of those precautions? Just now the promise of such a transformation of the American character is somewhat vague. Never before in the entire history of the country have so many agencies for social and sanitary uplifting been in evidence; never before have so many of the more intelligent class of Americans been actively identified with such movements. But, at the present rate, how long will it take for this thinking handful of Americans to arouse and leaven the general mass of this country's population?